tient was restless, noisy and confused; temperature 99.4°. This state continued until June 12, being accompanied by a further elevation of temperature, reaching 102.4°.

Progress Notes: Extreme delirious confusion, gradually subsided until June 12, when the patient still showed talkativeness and restlessness. An acute nephritis was present on admission, subsiding with the marked confusion. A blood culture on June 6 showed a scant growth of gram positive diplococci with a tendency to form chains. Wassermann blood serum XXX. Cerebro-spinal fluid XXX. Globulin XXX. Cells 184. Colloidal gold reaction 4455554432. At the present time, July 1, patient is restless, destructive and at times untidy.

SELECTED POINTS IN GASTRO-INTESTINAL DIAGNOSIS.*

By CARO W. LIPPMAN, M. D., San Francisco.

It is a well known fact that profuse diarrhea may occur in Graves' or Basedow's disease as well as in Addison's disease. These diarrheas are of two types, one associated with large amounts of fat in the stools, the other with no signs of disturbance of fat absorption. That the presence of a profuse watery diarrhea may serve as a differential diagnostic point I wish to demonstrate with the following case history:

Previous history—man of 63. Rheumatism since the age of 11 with red, swollen joints, laid up about three months in each of five attacks. Six years ago typical gallstone attacks requiring morphia, similar attacks two months ago. For last six months nausea, retching, belching, but no vomiting. This condition is not affected by the kind of food he eats. Aversion to meat for the last months. Loss of 50 lbs. in weight in six months which he ascribes to his not eating and a daily watery diarrhea—(two to twelve stools). He helped this diarrhea along by taking cathartics. He had an evening rise of temperature, 102° every second night. No malarial organisms found. Six weeks ago painful lumps on spine appeared (lipomata). No occult blood in stools. The diagnosis before I saw him was gallstones plus psychasthenia. He was sent to me with the question of a malignant growth in the stomach. He still weighed about 200 lbs. Physical examination was unsatisfactory. He had a palpable spleen, tenderness in the gallbladder region, and painful fat tumors along the spine. Otherwise, physical examination was negative. Blood pressure, 150 mm Hg. More important than the general physical examination was the impression of asthenia. It exhausted this 200-pound man for an hour to walk from the elevator to my office. And this without demonstrable cause. Fluoroscopic examination was negative for carcinoma of the stomach. The stool examination with the Schmidt test showed a large liquid stool with no free fat globules, few fatty acid crystals, no starch granules, no mucus. The only abnormal element was a large amount of connective tissue with a few meat fibres imbedded therein. This stool was not the stool of a chronic irritative bowel condition. The absence of the fatty constituents in a diarrhea stool militated against pancreatic disease, although it did not rule it out. The stool was of the type most often seen in a toxic diarrhea. The asthenia, (even without low B. P.), the presence of painful fatty tumors, the toxic diarrhea, all pointed to one of the internal secretory glands as the cause of the disturbance, in this case, to the suprarenal glands. Gallstones alone did not account for the whole symptom complex. At operation some months later gallstones and a left-sided hypernephroma were found. Earlier operation might have prolonged the man's life.

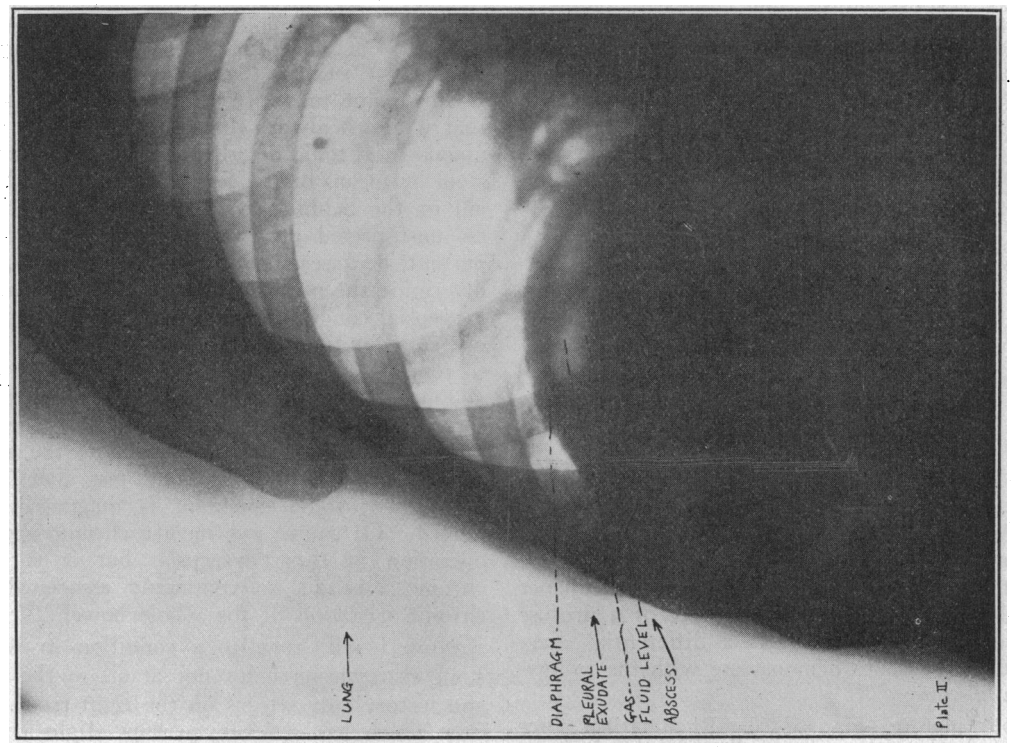
The point to which I wish to call attention is that we must always think of the internal secretory glands in chronic diarrhea and always examine the stool by means of the Schmidt test diet. With the aid of the Schmidt test diet we may demonstrate an unsuspected pancreatic disease, even more important, because more commonly met with, we may determine the presence of a carbohydrate or proteid dyspepsia, conditions which are rarely diagnosed in our community and which are comparatively simple to remedy. In these cases the surgeon is in doubt and often takes out the appendix. The patient is then minus his appendix but still has the original disease. It would redound much to the advantage of the patient if a Schmidt test diet be given before a chronic appendix is diagnosed and removed. Of course, we have a chronic appendix at operation in these dyspepsias but it is only the chronic appendix so commonly associated with a chronic irritation of the whole bowel.

Now I will turn to a condition in which the stool examination helps not at all in the diagnosis and history only sets us on the right track. In any case which has a fever, perhaps slight cough and signs of fluid or pleurisy at the base of the right lung and besides this has a history of acute belly-ache at some time previously, think of a subphrenic abscess and examine the case fluoroscopically. Here I wish to emphasize, as always, that the most important point in abdominal diagnosis is the history, next in rank and at all times all-important in giving the indication for prompt operation, the radiological examination; thirdly, the examination of the stool for occult blood, or with the Schmidt test diet, as the case may require. I rate these in the order of their importance; all other examinations are of lesser importance and contribute other than confirmatory evidence only in exceptional cases. Of course, I am talking of diseases which lie beyond the reach of the proctoscope.

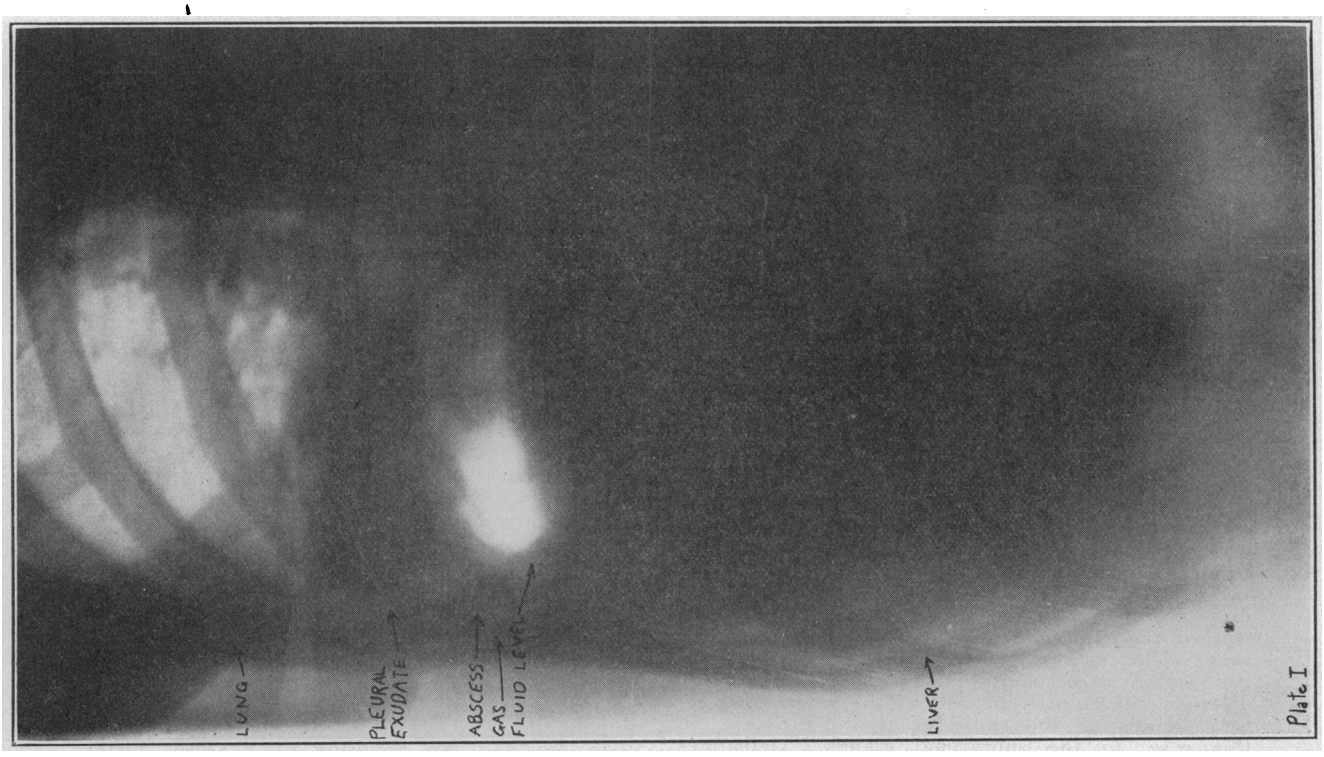
Case No. 1 (see Plate No. 3) was clinically diagnosed inflammatory condition of the abdomen, carcinoma. Six months ago, gas formation; six weeks ago patient was under the care of a stomach specialist. No dark stools. No vomiting. Four weeks ago, severe attack of abdominal pain with "hard muscles" after a lobster dinner. No fever. In bed one week. One week ago no free HCl after test meal. P. E. Ascites. Swelling of legs. Signs of fluid at right base. Temperature rose occasionally to 101°. Fluoroscopic examination: beneath diaphragm a fluid level which shows waves and droplets on shaking the patient —(see Plate No. 4). Duodenum distorted, lying along base of liver shadow moving with it (adherent). Liver indents upper part of stomach. Diagnosis: gas containing subphrenic abscess. Adhesions about duodenum with distortion of that organ. Probable perforated duodenal ulcer. Operation: pints of stinking pus removed from above liver.

Case No. 2 was that of a man with a history of pain in the epigastrium for three years. (See Plate No. 1). No vomiting or nausea. Fifteen months ago patient had severe pain in the epigastrium, fainted, later vomited about two quarts of dark blood. In hospital for a few weeks with

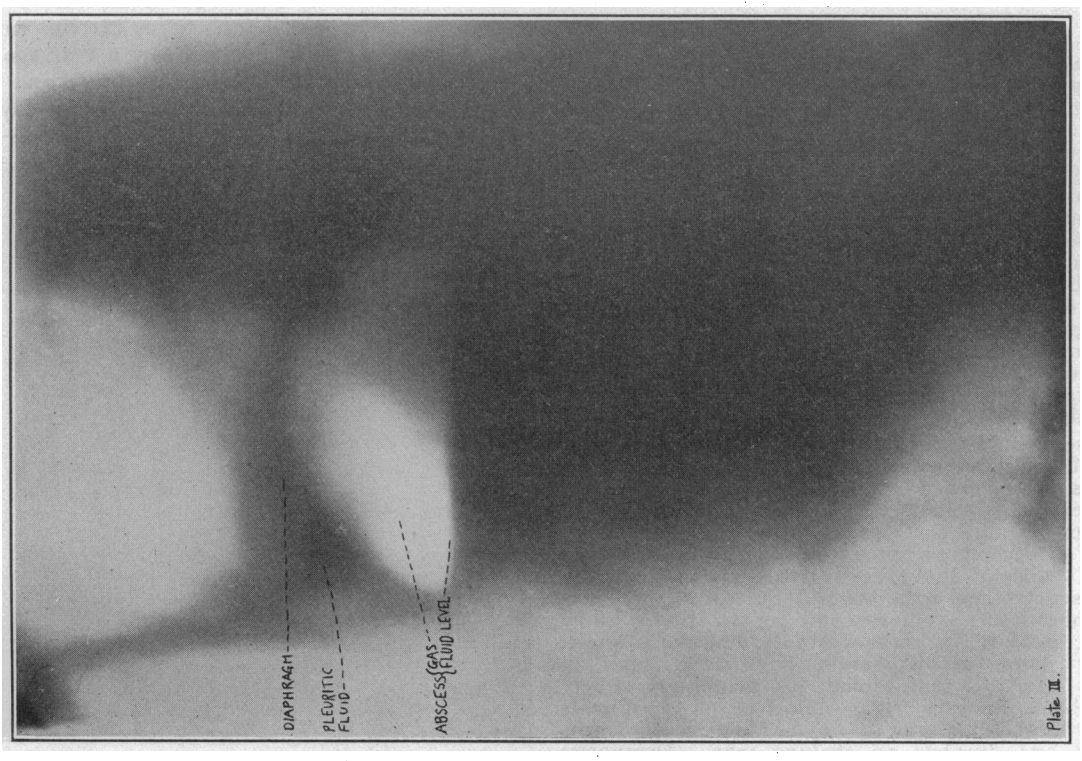
* Read before the annual meeting of the California State Medical Society, Fresno, Cal., April 20th, 1916.



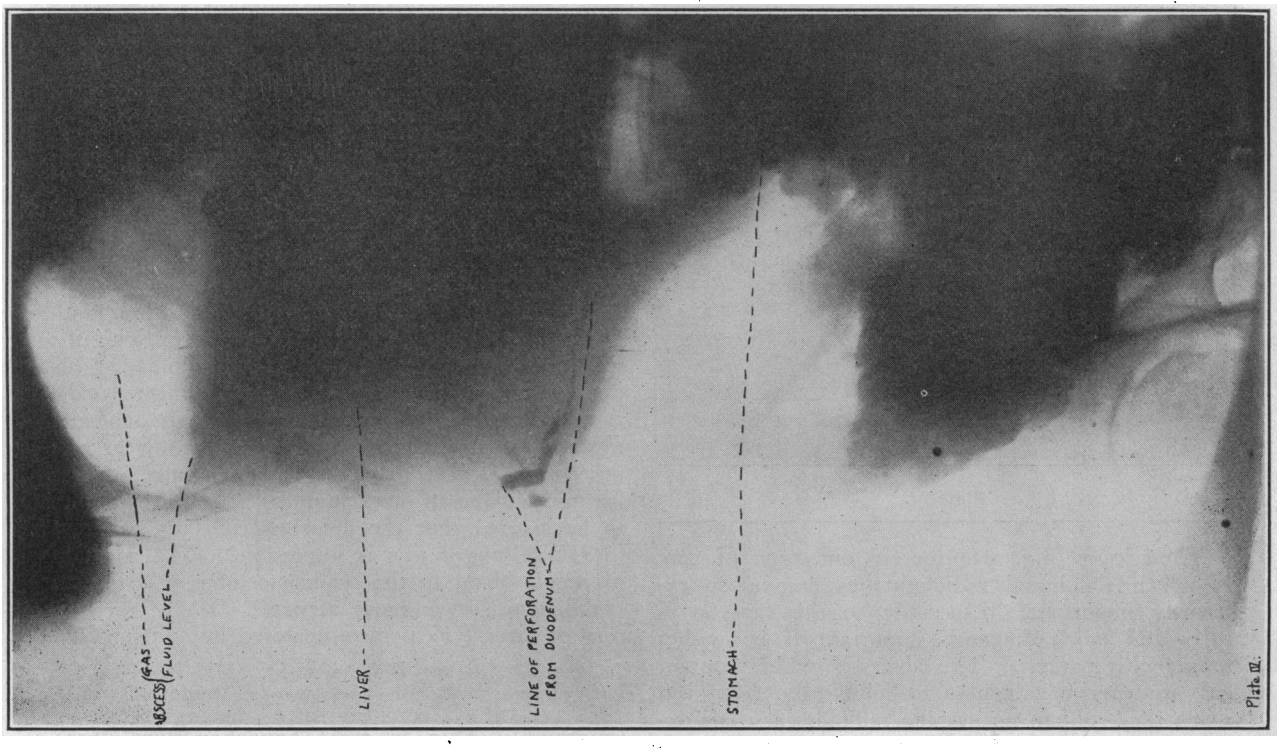
Subphrenic abscess. Plate I.



Subphrenic abscess. Plate II.



Subphrenic abscess. Plate III.



Subphrenic abscess. Plate IV.

diagnosis of peptic ulcer. For last eight or nine months pain came on two to three hours after meals, relieved by eating soda. Three days before entrance to hospital, pain was exceedingly severe. The physical examination showed bronchial breathing in the right lower lung, a liver edge palpable three fingerbreadths below costal margin. Patient is very tender over gallbladder region and just to left and above umbilicus. The patient had no temperature by mouth, 102° by rectum. The patient lay in the hospital for twelve days with a diagnosis of ulcer. The surgeon, at his first examination, suggested subphrenic abscess as a possibility. It was sent to me for fluoroscopy. Fluoroscopic report: Below right dome of diaphragm is fluid level with gas above. Level stays horizontal in all positions. No fluid in pleural cavities. Diagnosis: subphrenic abscess containing gas. Operation: about ten ounces of stinking pus drained from below diaphragm.

Case No. 3 (see Plate No. 2.) Operated on for ruptured appendix, August 19th. About three weeks later began to have an evening rise of temperature to 100°, which kept up for a month, the temperature occasionally rising to 102°. There were no other presenting signs or symptoms except some dullness at base of right lung. The case was sent to me with the question of tuberculosis (October 14th). Fluoroscopic report: Lungs show slight exudate in right costodiaphragmatic angle. Right dome of diaphragm immovable, high in chest cavity. Left dome of diaphragm freely movable. Beneath right dome of diaphragm is fluid level with gas above. Fluid level forms waves and droplets on shaking man. Diagnosis: Subphrenic abscess, containing gas. Operation: Three pints of foul stinking pus removed from above liver.

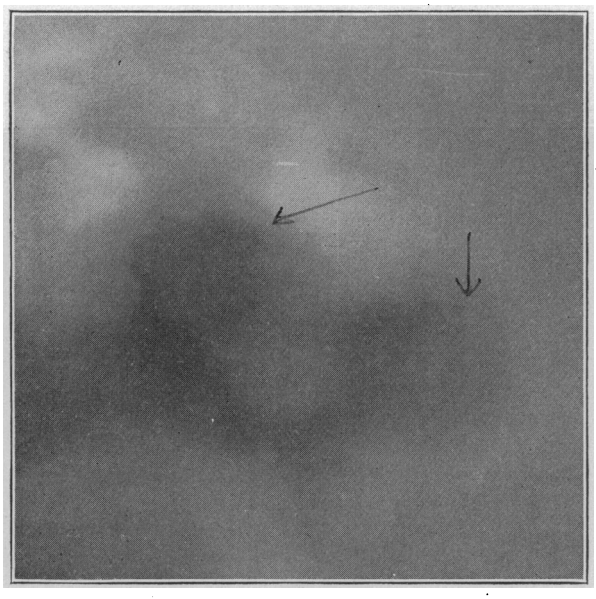
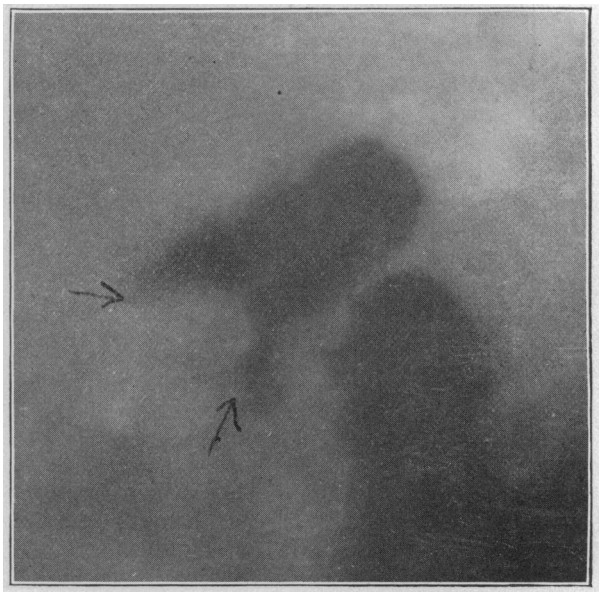


Plate V.

These cases illustrate merely one type of case in which abdominal radiology has become so extremely important. Especially to the surgeon is early and quick diagnosis important if he wishes to save his patient. The abscesses which contain gas are easy to diagnose radiologically, but even when they contain no gas the radiological examination is exceedingly important in differential diagnosis. We can rule out fluid or pus in the lung with a quick glance at the fluoroscopic screen. We can see whether the diaphragm is movable or not. Upon this latter point I wish to lay extreme emphasis. I think of a case which I saw a year ago. A man lay sick with a septic temperature and pain in the right side. The clinical diagnosis lay be-

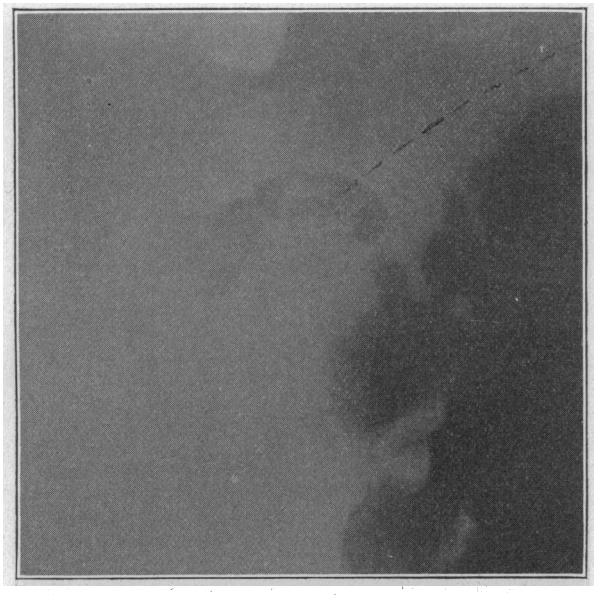


Duodenal ulcer. Cole's defect. Plate VI.

tween subphrenic abscess and perinephritic abscess with the possibility of tuberculosis. The fluoroscopic showed no fluid of any consequence in the lungs and a freely movable diaphragm. In the presence of a subphrenic abscess the diaphragm is never movable in my experience. Of course, you may have a fixed diaphragm without a subphrenic abscess being present. With the aid of the fluoroscopic examination we reached a diagnosis of perinephritic abscess by elimination. Lumbar incision was made and the pus removed.

Another point which helps me out in my obscure gastrointestinal cases is the observation of the distortion of the first part of the duodenum. The normal cap is roughly triangular and perfect in its outline. When this is distorted in any way and the distortion is constant we know that there is some process involving the first part of the duodenum. Whether this be duodenal ulcer with the scar tissue producing the defect or gallbladder disease our history and stool examination must decide. A duodenal ulcer history with a defect is duodenal ulcer with about 90% correctness in my private practice. I wish to insist about private practice because I make an observation of at least two hours to be assured that the defect is constant, whereas in clinical work this is impossible. The addition of occult blood to the syndrome, of course, makes the diagnosis even more accurate. I give the history of three typical cases operated by one surgeon.

Case No. 1 (see Plate No. 5). Mr. B. Age 55. Every ten days to two weeks, temples would swell up, then vomiting after having headache (migraine). Pain in right hypochondrium, three hours after meals for fifteen years. Attacks in fall and spring, principally. Never vomited until recently. Never vomited from breakfast or the



Chronic appendix. Plate VII.

day before. No loss of weight. Constipated. Pain relieved by eating. Fluoroscopic examination showed defect in cap to be constant, 1-6 residue of a Rieder meal after six hours. Diagnosis of duodenal ulcer with mild grade of pylorostenosis confirmed at operation.

Case No. 2 (see Plate No. 6.) Mr. Z. Classical duodenal ulcer history for many years. Pain two hours after eating. Defect in cap constant on fluoroscopic examination. Diagnosis: Duodenal ulcer. Operation showed defect to be due to thumb-like mass of adhesion in first part of duodenum.

Case No. 3 (see Plate No. 7). Mr. By. Age 54. Stomach trouble for several years. For last year worse. No vomiting. One year ago got sick three to four hours after meals. For the last few months gets nauseated with oppression in belly one to two hours after eating. No dark stools, has not lost weight. This case had a perfect duodenal cap so I went looking for other lesions. I show you his appendix, which was fixed and immovable on the fluorescent screen. Ninety-six hours after the last bismuth meal there was still a residue in the appendix. No tenderness over appendix. A diagnosis of chronic appendicitis was made. Removal of chronic appendix with recovery.

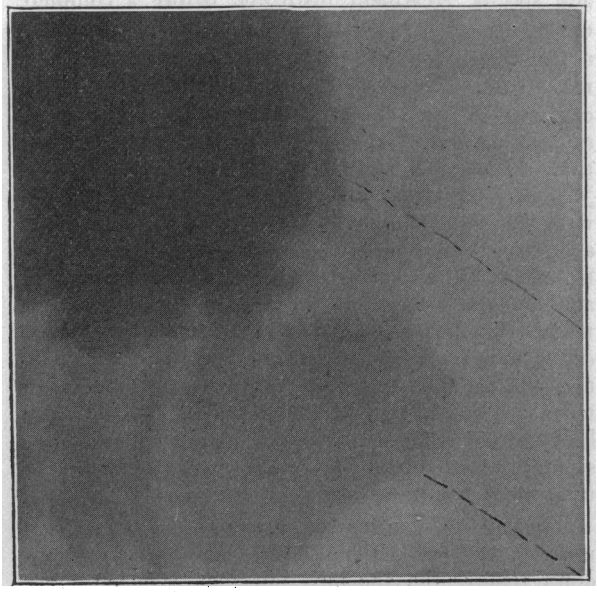


Plate VIII.

I have seen so-called duodenal ulcer history occur in so many belly conditions—particularly in gallbladder affections and general ptosis—that I think of it only as a symptom of duodenal irritation and deprecate the operation for duodenal ulcer on the basis of history alone as Moynihan advocates.

Another type of case in which the history gives us the diagnosis of ulcer, the stool may or may not give us information as to its activity, i. e., occult blood may or may not be present in the stool during the period of our examination but the fluoroscope gives us the indication for the urgency of operation. I refer to the cases of penetrating ulcer of the stomach. Any ulcer which has gone on to penetration must and should be removed operatively. The penetrating ulcer is characterized fluoroscopically by a hole in the wall of the stomach, the so-called niche of Haudek. The symptomatology of these ulcers does not differ materially from that of ordinary gastric ulcer—some cases having but little pain are diagnosed as chronic dyspepsia, others in which pain is the chief symptom are more readily diagnosed. I present a few cases without hour-glass formation because they are the most frequently missed. (See Plate No. 9.) To make this diagnosis of callous penetrating ulcer we must have not alone a bismuth patch sticking out from the stomach but also an immovable patch. A pain point usually coincides with the hole in the wall—a gas bubble may or may not be present. If I do not see a niche once in 80 to 100 cases sent to me for examination I feel that I am missing them. This percentage held true not alone of San Francisco, but also in other places where I have worked. Whether this ulcer be ulcer or ulcercarcinoma is a matter for the pathologist to decide—rarely for the clinician or surgeon.

The last callous ulcer (See Plate No. 10.) with niche formation represents a truly important case in which I overlooked certain possibilities. Following is the case history:

Nov. 29, 1915. Mr. J. A. J. Age 45. Pain in epigastrium radiating through to back for six to seven years with free intervals. Pain about three hours after eating and at night between 11 p. m. and 1 a. m. Pain not relieved by eating. Belches much gas. Vomits mouthful of sour water when he has pain. Has lost 12 lbs. in six weeks. Constipated seven years ago. Jaundiced. Pain refractory to ulcer diet. Venereal history denied. At operation a bulging callous ulcer on the lesser curvature was found but likewise a typical patchy white luetic liver. The man was closed up without excision of ulcer, then the Wassermann was taken, which proved negative. Despite this, specific treatment was instituted. The man was relieved of all his symptoms.

Note: May 29 the man returned to my office—the niche has completely disappeared, likewise the man's symptoms.

I now wish to take up syphilis of the stomach not such as this last case may prove to be and as it is described throughout the literature—either with syphilitic ulcer, palpable tumor, or syphilitic pylorostenosis, but an earlier and milder grade of syphilis—a syphilis which is probably only expressed by a submucosal infiltration and a chronic gastritis with

swelling of the mucous membrane of the stomach as witnessed by the enlarged rugae seen on the screen. The symptomatology is illustrated by the following three typical cases:

Case 1. C. W. F. Age 33. Sept., 1915. For last three to four months feels as if he has lead in his stomach after meals—no pain, followed by vomiting spells ten hours after meals—just a couple of mouthfuls of water. Ulcer diet for some months which didn't help. Three days ago vomited up burning water and few teaspoonfuls of blood. No food vomited. Venereal denied. Doesn't drink. P. E. negative. Fluoroscopic examination. Antrum formation imperfect. (See Plate No. 11.) Cap of duodenum perfect. Rugae of stomach very marked on pressure. On the strength of the very marked size of the rugae the chronic gastritis symptoms—sense of weight in epigastrium, vomiting of bitter fluid, etc., and the absence of any etiological factors, I made a diagnosis of gastritis probably on a luetic basis. The Wassermann was then taken. It was triple X positive. Specific arsenic and mercurial treatments were given—the patient promptly got well but did not stay well, apparently on account of insufficient treatment. He is still under treatment.

Case 2. S. V. S. Age 40. Machinist. Three years ago first attack of bellyache—general pain throughout belly with rigidity of belly wall. Fever. This pain came on while working. No trouble since this attack. Ten days ago, bellyache, just

Penetrating ulcer. Plate IX.

before going to bed, dull ache. Sense of fullness on right side of belly not confined to gallbladder region. Lying on back relieves pain. Twelve to 15 glasses of beer a day is the most he has ever taken but may go months without drinking. No whisky. Venereal denied except for black spot on penis seven years ago. No secondaries of any kind noticed. Not treated for lues. P. E. negative. Fluoroscopic examination showed slight halt of bismuth at cardiac end of oesophagus. Antrum formation of stomach perfect. Cap of duodenum perfect. Stomach three fingersbreadth below iliac crests. Rugae large—mammelated. Here again we have the symptoms fitting into a diagnosis of chronic gastritis with enlarged rugae. A diagnosis of ptosis with chronic gastritis on an alcoholic and possibly luetic basis was made. The

Callous ulcer (luetic). Plate X.

Wassermann was taken and proved triple X positive. The man was treated with specific arsenic and mercury preparations, losing all his stomach symptoms with lightning-like rapidity.

Mr. M. T. M. Dec., 1914. Age 37. Chauffeur. One year ago indigestion, pain in epigastrium, a little to right, coming on three to four hours after eating, acid belching lately. No vomiting. Constipated. Good appetite until lately. Eating relieves pain. Lately pain has shifted to left hypochondrium—is constantly there, worse one hour after meals. Venereal—hard chancre? several years after. Physical examination—negative. Stomach as in cases 1 and 2 with prominent rugae. Cap of duodenum perfect. Tentative diagnosis of syphilis with localization in the gastro-intestinal tract was made. Wassermann was then done, proving triple X positive. Specific treatment immediately cleared up the symptoms.

Of course, the two questions which occur to you at once is why wasn't a Wassermann taken and specific treatment instituted before a complete examination? If you did this you would miss many a true ulcer and many a cancer because syphilis is really and truly a popular disease which occurs in conjunction with other conditions of which it is not the cause. And here I wish to state my belief that syphilis is a rare cause of typical peptic ulcer. Just as you may have a positive Wassermann with the rash of a pityriasis rosea so you may have a positive Wassermann co-existing with a true peptic ulcer. This fact is brought out very prettily by an hour-glass stomach with a penetrating ulcer, where the doctor wouldn't cut out the ulcer but did a simple gastrogastrostomy. After the operation the patient's husband turned up with incipient tabes. The doctor gave her luetic treatment to heal the ulcer but when the hour-glass had returned several months later he finally had to excise the ulcer with resultant cure.

To sum up, gentlemen, in every case of atypical ulcer symptoms with negative laboratory findings don't remove the appendix but remove blood for a Wassermann.